

ABSTRACT

Fluid-handling methods and devices for ultrasonic manipulation of fluid-borne particles comprise a fluid-handling manifold and an ultrasonic particle manipulator defining an ultrasonic cavity within the manifold. Fluid-borne particles introduced into the manifold are manipulated by controlling ultrasonic standing waves at the ultrasonic cavity. Cavities having non-uniform configurations, asymmetric standing waves and/or multiple ultrasonic cavities within the manifold are operative to control the movement of the fluid-borne particles, optionally including collecting and holding such particles, transferring particles through an intersection from one channel to another, etc. Solid phase extraction (SPE) particles, biological particles and other fluid-borne particles can be manipulated within the fluid-handling manifold.

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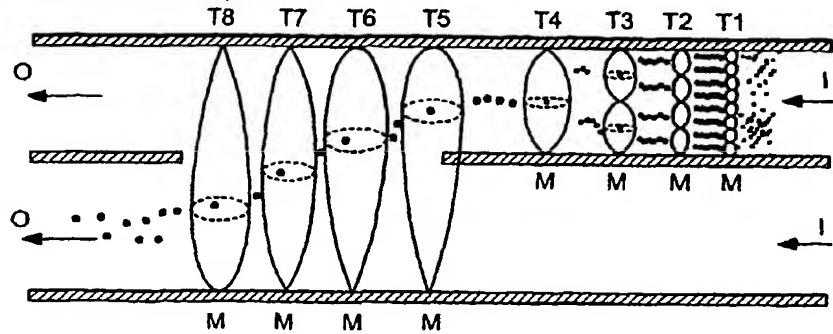
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(54) Title: **METHOD AND DEVICE FOR ULTRASONICALLY MANIPULATING PARTICLES WITHIN A FLUID**



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(57) **Abstract:** Fluid-handling methods and devices for ultrasonic manipulation of fluid-borne particles comprise a fluid-handling manifold and an ultrasonic particle manipulator defining an ultrasonic cavity within the manifold. Fluid-borne particles introduced into the manifold are manipulated by controlling ultrasonic standing waves at the ultrasonic cavity. Cavities having non-uniform configurations, asymmetric standing waves and/or multiple ultrasonic cavities within the manifold are operative to control the movement of the fluid-borne particles, optionally including collecting and holding such particles, transferring particles through an intersection from one channel to another, etc. Solid phase extraction (SPE) particles, biological particles and other fluid-borne particles can be manipulated within the fluid-handling manifold.